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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,390	08/29/2003	Adeana Richelle Bishop	MDM-0307	3586

7590 07/14/2006

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EXAMINER
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SINGH, PREM C

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/652,390

Applicant(s)

BISHOP ET AL.

Examiner

Prem C. Singh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-64 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-64 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

Amendments to claims 1, 2, 14, 15, 26, 29, 33, 38, 50, 57, 58, and 59 and cancellation of claim 13 is noted.

Objection to claim 2 is withdrawn.

Rejection of claims 2, 26, and 38 under 35 U.S.C. 112, second paragraph, is withdrawn.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duprey et al (WO 01/07538 A1) in view of Borghard et al (WO 96/03359 A1).

Duprey invention discloses that the catalyst composition used in the present invention comprises a hydrogenation component, a surface aluminated aluminosilicate zeolite crystallites and a low acidity refractory oxide binder material which is essentially free of alumina (Page 5, lines 24-29). Examples of aluminosilicate zeolites are aluminosilicates mordenite, zeolite beta, ferrierite, ZSM-11, ZSM-5, ZSM-22, ZSM-23, ZSM-35, ZSM-38, ZSM-48, ZSM-57, SSZ-23, SSZ-24, SSZ-25, SSZ-26, SSZ-32, SSZ-33, and MCM-22 and mixtures of two or more of these (Page 6, lines 3-8). A good base oil product can be prepared when a catalyst is used containing ZSM-12 (Page 6, lines 9-11).

Duprey invention further discloses that the hydrogenation component suitably comprises at least one group VI B metal component and/or at least one group VIII metal component (Page 9, lines 11-13). Group VIII metal components include those components based on both noble and non-noble metals. Particularly suitable group VIII metal components accordingly, are palladium, platinum, nickel, and/or cobalt in sulfidic, oxidic, and/or elemental form (Page 9, lines 20-24).

Duprey invention does not specifically mention that the molecular sieve contains at least one 10 or 12 ring channel. Since Duprey invention uses similar molecular sieve as claimed by the applicant, inherently, it must have at least one 10 or 12 ring channel.

Duprey invention does not disclose treatment of dewaxing catalyst with a stream containing one or more oxygenates.

Duprey invention does not disclose the details of FT catalyst and synthesis.

Duprey invention does not disclose alumina binder for the dewaxing catalyst.

Borghard invention discloses that the zeolite beta may be composited with a matrix material to form the finished catalyst and for this purpose conventional non-acidic matrix material such as alumina silica-alumina and silica are suitable with preference given to silica as a non-acidic binder, although non-acidic aluminas such as alpha boehmite may also be used (Page 7, lines 21-27). If the catalyst is to be steamed in order to achieve the desired low acidity, it is performed after the catalyst has been

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formulated with the binder, as is conventional (Page 8, lines 3-6). Steaming typically utilizes an atmosphere of 100% steam, at a temperature of 430 to 590°C and is normally carried out for 12 to 48 hours in order to obtain the desired reduction in acidity (Page 8, lines 23-27).

Borghard invention further discloses that the feed for the present conversion process is obtained by means of the FT synthesis, in which synthesis gas, comprising hydrogen and carbon monoxide is passed over a suitable catalyst under conditions of elevated temperature and pressure. The catalyst used is typically a metal or a metal oxide with iron, cobalt, nickel, ruthenium, thorium, rhodium, or osmium being preferred. Temperatures are typically in the range of 150 to 500°C and pressures of 100 to 100,000 kPa (Page 3, lines 20-30).

It would have been obvious to one skilled in the art at the time the invention was made to combine the teachings of Duprey and Borghard inventions and treat the catalyst with steam to reduce its acidity and make more useful for the dewaxing process. It is to be noted that steam (H-OH) is an oxygenate.

It would have been obvious to use FT catalyst disclosed in Borghard invention in Duprey process because both are using FT product for hydrodewaxing.

It would have been obvious to modify Duprey invention by using alumina binder disclosed in Borghard invention because both are functionally similar and alumina binder is cheaper.

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Claims 14-26, 28, 30-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duprey et al (WO 01/07538 A1) in view of Borghard et al (WO 96/03359 A1).

Duprey invention discloses a simple process which yields base oil products having a high viscosity index and a low pour point. This object is achieved by the following process. Process for preparing a lubricating base oil by contacting a synthetic wax, which wax is obtained by a Fischer-Tropsch (FT) process and has not been subjected to a hydroisomerization treatment, with a catalyst composition comprising at least a hydrogenation component, dealuminated aluminosilicate zeolite crystallites and a low acidity refractory oxide binder material which is essentially free of alumina (Page 2, lines 21-33). The FT process converts synthesis gas to a FT product comprising gaseous and liquid hydrocarbons and a FT wax (Page 3, lines 17-19). The FT product does not contain the sulfur, nitrogen or metal impurities normally found in crude oil, but is known to contain water, trace metals, and a number of unsaturated compounds and oxygenate compounds such as alcohols, ketones, aldehydes, etc. (Page 3, lines 21-26). The invention is also directed to a process to prepare a lubricating base oil as described above by performing at least the following steps, (Page 5, lines 1-3). Preferred embodiments of the above-described process are apparent from the description and include embodiments in which lower boiling fuel products are prepared next to the lubricating base oil product. The lower boiling fuels are prepared starting from the FT product from which all or part of the FT wax has been separated in step (c) which are

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subjected an optional hydrotreating step followed by a hydroisomerization step and a fractionation step (Page 5, lines 14-23). Catalytic dewaxing involve operating temperatures in the range of from 200 to 500°C, preferably from 250 to 400°C, hydrogen pressures in the range of from 10 to 200 bar, preferably from 15 to 100 bar, more preferably from 15 to 65 bar, weight hourly space velocities in the range of from 0.1 to 10 kg oil per liter of catalyst per hour (kg/l/hr) and hydrogen to oil ratios in the range of from 100 to 2,000 liters of hydrogen per liter of oil (Page 10, lines 7-16). The catalyst was activated by reduction of the platinum under a hydrogen rate of 100 l/hr at a temperature of 350°C for 2 hours (Page 12, lines 6-8). A FT wax which has been subjected to a hydrotreatment in order to reduce the oxygen content to below 500 ppmw as molecular oxygen, but which has not been subjected to a hydroisomerization treatment having the properties listed in Table I (Page 12, lines 12-16).

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duprey et al (WO 01/07538 A1) in view of Borghard et al (WO 96/03359 A1) and further in view of Ziemer (US Patent 4,867,862).

Duprey and Borghard inventions do not disclose dehazing of the stock.

Ziemer invention discloses a single stage, multi-layered catalyst system for hydrodehazing and hydrofinishing a hydrocracked, solvent dewaxed lube oil base stock (Column 1, lines 6-9).



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Although Ziemer is using a stock from a hydrocracking unit, it would have been obvious to one skilled in the art at the time the invention was made to combine Duprey, Borghard, and Ziemer inventions and dehaze the stock for a better quality lubricant.

Claims 29 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duprey et al (WO 01/07538 A1) in view of Borghard et al (WO 96/03359 A1) and further in view of Derr, Jr. et al (US Patent 4,684,756).

Duprey and Borghard inventions do not mention about a non-shifting FT catalyst.

Derr invention discloses conversion of relatively low H<sub>2</sub>/CO ratio syngas (1/1 or less H<sub>2</sub>/CO ratio) wherein it is essential that the CO reducing catalyst used include water-gas shift activity or be characterized so that steam formed in the FT operation will react with charged CO to form H<sub>2</sub>. Examples of CO reducing catalysts having shift activity are iron alone, or iron, cobalt or ruthenium provided with an added shift catalyst component. Shift catalysts suitable for the process include those containing the elements Fe, Cr, Zn, Cu, or K (Column 2, lines 46-55).

Since Duprey and Borghard inventions do not mention about shift activity, it would have been obvious to use a non-shift catalyst, because shift reaction is not intended in their inventions as they are treating the FT products for dewaxing operation.

***Response to Arguments***

The Applicant argues that Duprey does not disclose or suggest a catalyst that is prepared by contacting a Group VIII metal component and a dewaxing component that has been reduced with a hydrocarbon stream containing one or more oxygenates.

The examiner, in the light of claim 1, understands that probably the Applicant's argument should be, "...component that has been reduced and then treated with a hydrocarbon stream containing one or more oxygenates."

The Applicant's argument is not persuasive because Duprey discloses using a zeolite catalyst (Page 6, lines 5-12) with a Group VIII metal component (Page 9, lines 11-13). Duprey further discloses, "The catalyst was activated by reduction of the platinum under a hydrogen rate of 100 l/h." (Page 12, lines 6-7). Duprey adds, "Fischer-Tropsch product is known to contain water, trace metals, and a number of unsaturated compounds and oxygenate compounds such as alcohols, ketones, aldehydes, etc." (Page 3, lines 22-26). Duprey is using a Fischer-Tropsch (FT) wax with reduced oxygen content to below 500 ppmw as molecular oxygen, in the process (Page 12, lines 12-15).

The Applicant argues that Duprey fails to disclose or suggest that the hydrocarbon stream used for the treatment is one produced over a non-cobalt FT process.

The Applicant's argument is not persuasive because Duprey discloses, "This object is achieved by the following process. Process for preparing a lubricating base oil by contacting a synthetic wax, which wax is obtained by a FT process and has not been

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subjected to a hydroisomerization treatment." (Page 2, lines 25-29). Clearly, Duprey does not rule out that the hydrocarbon stream is produced in a non-cobalt FT process.

The Applicant's argument mentioning that there is no basis for combining Duprey and Borghard is not persuasive because Borghard also uses a zeolite catalyst with Group VIII metal component (Page 6, lines 22-25; page 7, lines 11-15) sulfided/reduced (Page 14, line 30-31) and then treating a FT hydrocarbon product which is known, as per Duprey, to have oxygenates.

Likewise, the Applicant's argument that combining Ziemer and Derr inventions with Duprey and Borghard fail to reject claims 27, 29 and 64 respectively, is not persuasive because the combined inventions make a *prima facie* case of obviousness.

### **Conclusion**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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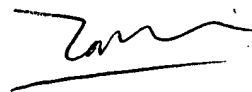
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prem C. Singh whose telephone number is 571-272-6381. The examiner can normally be reached on MF 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ps/063006

A handwritten signature in black ink, appearing to be "Zam", with a horizontal line underneath it.